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FOR PYONEPHROSIS DUE
TO A "SIGMATE" CON-
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BY

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VAGINOURETEROSTOMY AFTER NE-PHRECTOMY FOR PYONEPHROSIS DUE TO A "SIGMATE" CONSTRICTION OF THE URETER.*

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HAVING removed the kidney what disposition shall we make of the ureter? In endeavoring to answer this question in a way which will best conserve the interests of the patient, immediate and remote, several plans deserve consideration.

First, and oldest of them all, the ureter may be drawn up as far as possible, cut off short, ligated, and dropped back into its retroperitoneal pocket, sometimes to remain quiescent, in some instances to distend with pus or urine, and discharge through a lumbar fistula setting up inflammatory adhesions which greatly add to the difficulty of its subsequent removal. Of late years, except in few instances, this plan has been relegated to the land of "has been."

The second method, that of bringing the ureteral stump out through the lower angle of the lumbar incision and fastening it to the skin, has proven of great value in many hands, as it affords free vent to any pus which may accumulate in the ureter,

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and for the introduction of drugs which will heal or destroy the mucous lining of the ureter and facilitate atrophy of that tube. Schede treated 22 cases by this plan after extirpation of tuberculous

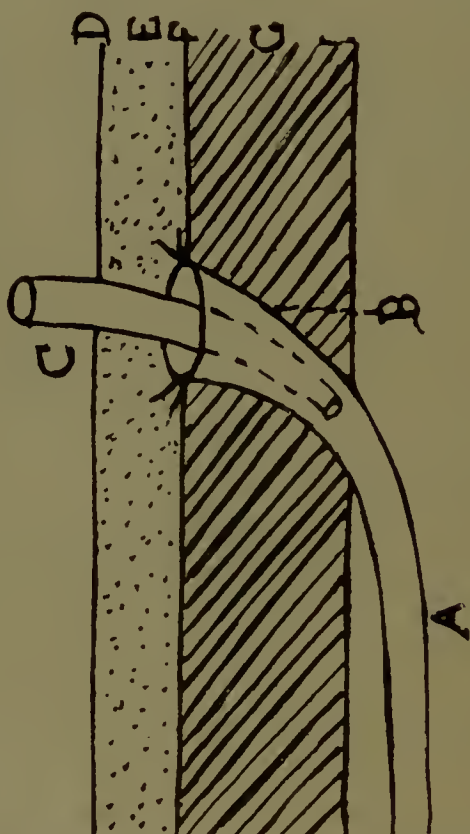


FIG. 1.—A, ureter; B, stump of renal pelvis sutured to lumbar fascia; C, drainage-tube; D, skin; E, subcutaneous fat; F, lumbar fascia; G, lumbar muscles.

kidneys, and of the 16 patients who recovered not one was troubled with a permanent fistula.

Ureterectomy.—According to Bovée, the first partial ureterectomy was done by Tuffier, in 1891, and the first complete removal, by Poncet, in 1895. The

“American” operation, nephroureterectomy at one sitting, was first carried out by Kelly in December, 1895.

Since that time many operators have removed

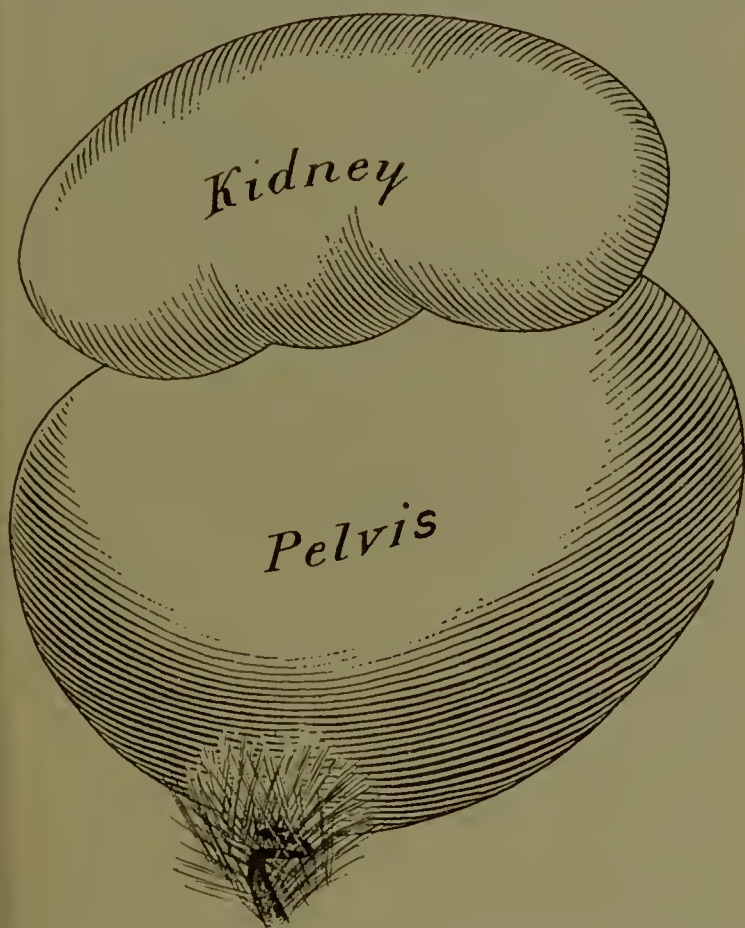


FIG. 2—Hydronephrosis due to an S-shaped bend in the ureter, bound down by fibrous bands.

the ureter *in toto*, primarily or secondarily, chiefly where the ureter has been the seat of tuberculous

disease, and in order to prevent or overcome tuberculous infection of the bladder or the danger of infecting the opposite kidney. Of the 17 cases collected by Bovée (*American Medicine*, June 6, 1903) only two ended fatally.

In view of the fact, admitted by all operators, that primary removal of the ureter adds to the length of time and difficulty of the operation and the likelihood of shock, and that in secondary operation, when called for in the presence of symptoms of retention in the ureter, the added inflammatory adhesions cause greater difficulty of removal and liability to infection, I have carried into effect the following plans after the removal of a pus kidney due to stricture of the ureter, subsequent to hysterectomy. In order to secure ample drainage of the ureter should trouble arise, the lower inch of the kidney pelvis was cut away with the ureter and sutured to the lumbar fascia, thus leaving a funnel-like opening in the subcutaneous tissue, into which a drainage tube could be easily introduced (Fig. 1). Suppuration did take place, the skin was incised, and drainage was easily established. This was repeated three times, and only after the third black silk knot used to ligate the renal vessels was discharged did the wound heal. The patient has not been troubled since December, 1904. Evidently the ureter, though occluded about four inches from the bladder, gave no trouble.

At the time when this plan was reported (*American Medicine*, 1903, xi, 65-67) I suggested the practicability of vaginal implantation of the ureter: "After nephrectomy for tuberculous kidney, pyonephrosis without ureteral obstruction, it might be well to afford additional drainage and divert the ureteral secretion from the bladder by resection of



FIG. 3.—Vaginoureterostomy; resected ureter brought into vagina. untied sutures in place; upper suture surrounds ligated vesical end of uterus.

the vesical end (after introducing a catheter into the ureter), exposing the ureter, through the vaginal wall, cutting across, closing the vesical stump, and suturing the proximal end into the vaginal wound, that the ureter may drain directly into the vagina, where it can do no harm."

The following case afforded the opportunity to put this method into practice.

On December 29, 1905, at the request of Dr. L. Howard Moss, I first saw the patient here presented, who was then troubled by a cystic tumor lying on the left side of the abdominal cavity, its center opposite the umbilicus, movable up and down two or three inches; from the history it seemed to have arisen from the pelvic cavity. Through an anterior exploratory incision it was found to lie behind the peritoneum and to be made up of the dilated kidney and pelvis. I operated on January 17, 1906, at the Jamaica Hospital. Through a lumbar incision the pelvis was opened and emptied of more than 1,000 c.c. of urine, but no opening to the ureter could be found. On exposing the uretero-pelvic junction the obstruction was found to be due to an S-shaped bending of the ureter which was bound down by dense adhesions bands (Fig. 2) completely precluding the outflow of the urine. As soon as these bands were freed from the adhesions, a probe was easily passed down to the pelvic brim. Owing to the large size and thinness of the kidney no attempt was made to suture it, but it was supported by gauze packing, and urine flowed freely into the bladder for several days until the packing was removed. Later the kidney seemed to drop and the obstruction recurred so that on April 25, 1906, the kidney was removed, leaving part of the pelvis and the ureter *in situ*. From that time there

was some discharge from the lumbar sinus of pus mixed with urine.

On September 18, 1907, at the Baptist Deaconess Home, vaginal implantation of the ureter was carried out. A catheter was introduced into the ureter and passed easily to the cavity in the loin. With this as a guide, stiffened by a metal probe, an incision was made through the left vaginal vault exposing the ureter. While endeavoring to draw down the ureter with mouse-tooth forceps the bladder was torn into and through this opening the index finger was used to hook down the ureter, rendering resection quite easy. The ureter was cut off about one inch from its bladder attachment, the proximal end was brought down into the vagina and sutured there. Two catgut sutures were inserted through the vaginal wall including the bladder end of the ureter, closing it off permanently. The discharge from the lumbar sinus at once lost its urinous character and changed to thick pus. September 30, the vesicovaginal fistula was closed by silkworm suture and remained closed. The lumbar sinus has also closed. A small papilla in the vagina now marks the site of the ureteral implantation.

In conclusion: The extreme gravity of the operation and high mortality following nephrectomy, without coincident removal of the ureter, lead us to devise simpler methods than ureterectomy, and by implantation of the "pelvic funnel" into the lower angle of the lumbar wound, subcutaneously, we (*a*) shorten the time of operation; (*b*) reduce the likelihood of shock; (*c*) frequently secure primary union; or (*d*) drain in a simple, safe, and curative way.

Should the urine regurgitate from the bladder, or in case of tuberculous infection of the ureter, we

resect the latter, close to the vesical end, and suture the proximal end into the vaginal vault.

When there is stricture of the ureter the combination of lumbar and vaginal implantation gives free vent at both extremities.

In tuberculous infection of the kidney and ureter it might be well to form a vaginoureteral fistula as a preliminary to nephrectomy in order to shunt the infected stream from the bladder, and to learn more particularly of the capacity of the other kidney.

The results of Schede's plan demonstrate that with proper drainage even tuberculous ureters heal and atrophy; therefore we need not hesitate, in men, to implant the ureter into the rectum.

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